Diabetes Mellitus and Myocardial Infarction: a Time to Act or a Time to Wait?

Premature vascular disease remains the most common cause of death in people with diabetes. In an attempt to focus clinical and research attention on this problem I have suggested that diabetes could be considered as 'a state of premature cardiovascular death which is associated with chronic hyperglycaemia and may also be associated with blindness and renal failure'. The most serious manifestation of vascular disease is myocardial infarction, and the mortality from myocardial infarction in people with diabetes is twice that of the non-diabetic population. The management of non-diabetic people with a myocardial infarction has improved following the clinical application of results from large multi-centre research studies, but data have been slow to accumulate for the application of these treatments in people with diabetes.

This edition of *Diabetic Medicine* contains two articles that look at available evidence for the proper management of the diabetic patient with acute myocardial infarction. Professor Yudkin examines the immediate management of the infarction, including thrombolytic therapy and aspirin, which also has a role for secondary prevention.[1] He again dismisses the suggestion that patients should be denied life-saving thrombolytic therapy because of the theoretical, and unproven, risk of haemorrhage from diabetic retinopathy.

He also describes the control of glycaemia at the time of myocardial infarction, and, on the evidence of the DIGAMI study, advocates the use of insulin and glucose infusion during the hospital admission followed by multiple injection therapy for at least 12 months. The DIGAMI study showed a significant benefit on mortality, with a 28 % reduction in mortality in the intervention group at 3 years of follow-up. This was obtained with a 15 % risk of hypoglycaemia in this group, which was apparently without any adverse clinical consequence.

The clinical application of the results of the DIGAMI study is contentious, and debate is polarized between those who, like Professor Yudkin, advocate full implementation of intravenous and subcutaneous insulin,[2–5] and those who suggest a wait-and-see approach for the subcutaneous insulin.[6–8]

Many questions remain unanswered. Was the improvement in mortality because of improved metabolic control with the intravenous insulin at the time of the infarction, the improved control with subcutaneous insulin after discharge, the withdrawal of sulphonylurea therapy[6,8] or a combination of all three? If the intravenous insulin is important, how tight should glycaemic control be and could the same benefit be obtained without the risk of hypoglycaemia? If chronic treatment is important, do these patients need multiple injections or would more limited insulin treatment regimens suffice? This is not a trivial point, as the institution of multiple injection regimens in this group of patients will have significant resource implications, and some already stretched diabetes teams may not be able to take on this extra workload without extra resources. We also need to take into account the fact that only 50 % of patients were able to be randomized, and some patients may not be willing or able to comply with the treatment protocol outside the research arena.

In a second paper, MacDonald *et al*. examine the drugs which might benefit diabetic patients for secondary prevention of myocardial infarction.[9] The indications for the use of lipid lowering with statins are changing as the cholesterol level for intervention goes ever lower. The report offers a useful clinical snapshot in this rapidly changing field. Beta-blockers and ACE inhibitors are of proven benefit and the authors provide convincing evidence for active management. It is very worrying that their own data from Dundee and data from elsewhere show that these potentially life saving drugs are often not prescribed in patients with diabetes, and this should be addressed urgently.

It is now incumbent upon diabetes specialists to take the lead with our cardiological colleagues in drawing up local protocols for the administration of aspirin, thrombolytic therapy, beta-blockers, ACE inhibitors, and statins to diabetic patients with myocardial infarction. As the implications of the DIGAMI study results are not so clear-cut, discussion of the relevant aspects of the study will permit the development of local protocols which have the support of local doctors, at least until the results of a follow-up study from Sweden can contribute to the debate.

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